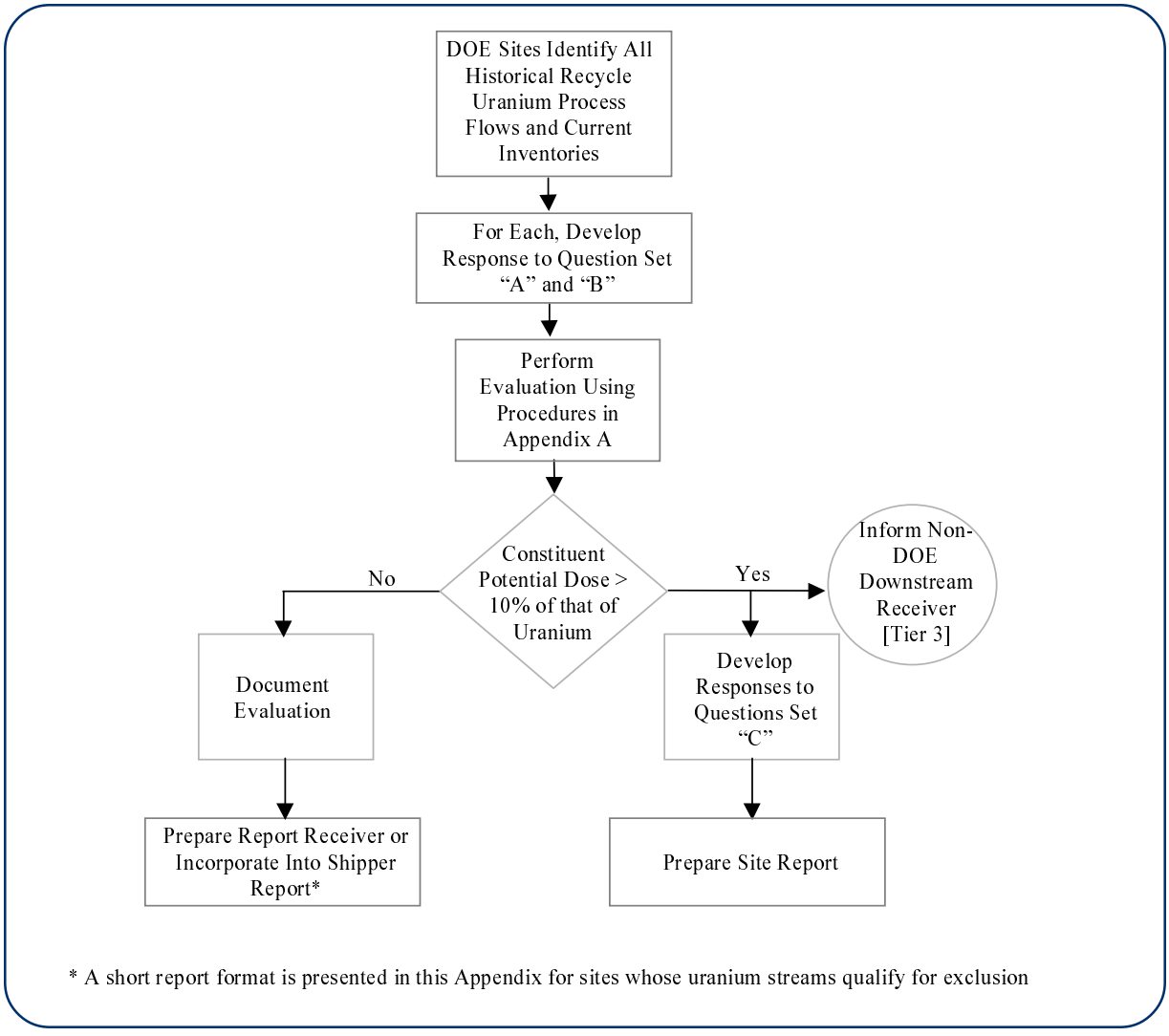
APPENDIX B
SITE REPORT OUTLINE

B.1 GENERAL

The site reports will be prepared following the methodology established in the project plan and the flow chart in Figure 1.

Figure 1. Flow Chart of Actions Involved for Determining Recycled Uranium Flow Exclusions



Instructions for the completion of the site report for sites where recycled uranium flows cannot be excluded are in Section B.2. An outline of the report required for these sites is provided in Attachment A, which expands upon the basic question set established in the body of the project plan.

Sites for which all uranium flows may be excluded will submit an abbreviated report, the content of which is described in Attachment B.

A description of the use of data forms and a sample copy of each form is given in Attachment C.

B.2 SITE REPORT FORM AND CONTENT

The site report should address the three main elements of the mass balance project, as outlined in Mr. Glauthier's memorandum of September 15, 1999:

- Information regarding the shipments and receipts of recycled uranium (i.e., the mass flow streams, including amounts, origin, and destination).
- Information regarding the levels of transuranics and fission product contaminants in the streams and site processes that had the potential to expose workers including potential exposure at elevated levels of transuranics that were concentrated from onsite processing. The probable number of workers exposed to elevated levels of transuranics will be estimated.
- Information constituting mass balance activities sufficiently thorough to identify any significant implications for potential personnel exposure or environmental contamination.

The outline of a report to meet these requirements is provided in Attachment A. In addition, the report should provide sufficient background to allow a typical member of the Working Group to understand the content in the context of the historical site operations, including the workforce and its work. Only those portions of the outline that pertain to a particular site need to be completed.

Note: When in doubt, remember that the overall purpose of the project is to identify those processes that could cause unplanned or unrecognized radiological exposure to workers or environment because of the contaminants in the recycled uranium.

ATTACHMENT A

SITE REPORT OUTLINE

Table of Contents

Executive Summary

The Executive Summary should briefly discuss the site's recycled uranium historical activities and the results and conclusions with regard to the three project elements. It is important for this section to discuss the levels of transuranics in the uranium and operating history of the plant (including facilities and specific time periods) where there are significant implications for potential personnel exposure or environmental contamination. Summary material should address only elevated hazards above the 10% criterion established in the project plan.

- Site Description
- Summary Uranium Flow
- Concentration/Removal Activities
- Uranium Recycle
- Recycle Uranium Shipments
- Typical Impurities in Recycled Uranium
- Current Inventory of Recycled Uranium
- Locations and Time Frames of Potential Worker Exposure
- Locations and Time Frames of Potential Environmental Releases

1.0 (Site) Uranium Mass Balance Project

This section should show how the site interfaced with other sites in the flow of recycled uranium and the involvement of the site with the mass balance project.

1.1 Project Overview

1.2 Purpose and Scope

1.3 Project Implementation Strategy

2.0 Site Historical Overview

Site descriptions should include buildings, processes, and products with specifications and applicable time frames over the time of the site operations for all appropriate site facilities.

2.1 Site Description

2.2 Key Uranium Processing Facilities

2.2.1 Plant (X)

2.2.1.1 Plant Description

2.2.1.2 Material Flowsheet

2.2.1.3 Feed Specifications

2.2.1.4 Product Specifications

2.2.1.5 Operating History

2.2.1.6 Current Status

2.2.2 Plant (Y)

2.2.2.1 Plant Description

2.2.2.2 Material Flowsheet

2.2.2.3 Feed Specifications

2.2.2.4 Product Specifications

2.2.2.5 Operating History

2.2.2.6 Current Status

2.2.3 Other Uranium Handling Facilities

2.3 Activity summaries (concentrating processes and other site-specific issues related to processing and plants)

2.4 Activities where workers were likely to be in contact with recycled uranium through direct physical contact or through airborne dust.

2.5 Activities that caused reportable environmental releases of recycled uranium constituents

3.0 Recycled Uranium Mass Flow

This section should show the annual flows of recycled uranium to and from the site, including scrap and waste deposition and the site inventory of recycled uranium as of March 31, 1999.

3.1 Uranium Recycle Description

3.2 Uranium Receipts

3.3 Uranium Shipments

3.4 Recycle Uranium Waste

3.5 Recycle Uranium Scrap

3.6 Inventory as of March 31, 1999

4.0 Constituents in Recycled Uranium

This section should present the range of concentrations of the transuranic, fission product, and activation product constituents in the recycled uranium processed by the site with as much detail as the site data permit (use of data provided by shipper

or receiving sites is permissible, but should be referenced in discussion and data forms to permit verification).

4.1 Analytical Laboratories

4.1.1 Analytical Procedures

4.1.2 Analytical Methods and Errors

4.1.3 Processing Issues

4.1.4 Quality Assurance

4.2 Analytical Results for Plutonium in Uranium Materials Shipped

4.2.1 Plutonium Specification in Recycled Uranium

4.2.2 Impurity Concentrations in Incoming Recycled Uranium

4.3 Analytical Results for Neptunium in Uranium Materials Shipped

4.3.1 Neptunium Specification in Recycled Uranium

4.3.2 Impurity Concentrations in Incoming Recycled Uranium

4.4 Analytical Results for Technetium in Uranium Materials Shipped

4.4.1 Technetium Specification in Recycled Uranium

4.4.2 Impurity Concentrations in Incoming Recycled Uranium

4.5 Analytical Results for Plutonium in Uranium Materials Received

4.5.1 Plutonium Specification in Recycled Uranium

4.5.2 Impurity Concentrations in Incoming Recycled Uranium

4.6 Analytical Results for Neptunium in Uranium Materials Received

4.6.1 Neptunium Specification in Recycled Uranium

4.6.2 Impurity Concentrations in Incoming Recycled Uranium

4.7 Analytical Results for Technetium in Uranium Materials Received

4.7.1 Technetium Specification in Recycled Uranium

4.7.2 Impurity Concentrations in Incoming Recycled Uranium

4.8 Discussion of Other Constituents, if Any

5.0 Mass Balance Activities

5.1 Annual Mass Balances of Recycled Uranium

5.2 Annual Mass Balances of Plutonium in Recycled Uranium

5.3 Annual Mass Balances of Neptunium in Recycled Uranium

5.4 Annual Mass Balances of Technetium in Recycled Uranium

5.5 Mass Balance of Other Constituents, if Any

5.6 Potential for Worker Exposure from Recycled Uranium.

5.7 Potential for Environmental Contamination from Recycled Uranium.

6.0 Results and Conclusions

6.1 Explanation of Flow Paths

6.2 Identification and Evaluation of Processes or Facilities That Involved Potential Worker Exposure to Recycled Uranium Constituents.

6.3 Identification and Evaluation of Processes or Facilities That Involved Potential Environmental Contamination

6.4 Discussion of Data Sources (Confidence, Uncertainty)

6.5 Conclusions - What are the significant implications for potential personnel exposure or environmental contamination from recycled uranium? Identify operations and worker groups. If further work is needed, suggest follow-up work.

7.0 References

Appendices Data Forms

Detailed Charts to Support Section 3

Site-Specific Process Detail

Data Review and Comparison Strategies

Additional Site-Specific as Needed

Glossary (Terminology/Informative Jargon)

CONCUR:

_____

Site Team Lead

_____

MC&A Official

_____

Site Health Physicist

_____

Process Specialist

ATTACHMENT B
SITE REPORT CONTENT

For those sites or flow streams where the level of transuranics and fission products is outside the project scope through use of the prioritization of uranium flow exclusion definition, an abbreviated site report is appropriate. The justification for a flow exclusion determination must be completed according to the procedure contained in Appendix A. The report should have sufficient information to clearly justify the validity of the contaminant levels. If historical reports are used, the reports should be based on actual data with the data source referenced and available upon request. Required report information is indicated below.

Site Description and Historical Processes

Flow Stream Exclusion Justification

Considerations

- Describe and reference the data used in calculations
- Perform calculations according to the procedures in Appendix A.
- Identify streams that were outside project scope (excluded from scope)

Results

Conclusion of negligible potential impact from the contaminants in the recycled stream on workers or the environment.

NOTE: Although a fundamental assumption for flow exclusion justification is that the radiological controls that were in place for the uranium would sufficiently protect against the contaminants in the recycled uranium, the justification for flow exclusion is not to be based on the site contractor's independent judgment of the sufficiency of historical radiological protection measures. The justification must be based on the documented levels of contaminants due to recycling and the utilization of the procedure contained in Appendix A. Calculations and the underlying data should be subjected to appropriate quality assurance measures.

ATTACHMENT C

USE OF DATA FORMS FOR RECYCLED URANIUM PROJECT

For information on completing these forms, please consult the ES&H Recycled Uranium Legacy web site: http://tis.eh.doe.gov/legacy

Recycled Uranium Inventory Form

Use only for inventory of recycled uranium at site on March 31, 1999.

Separate entries are needed for each enrichment level and chemical form within each enrichment level.

Inventory locations should be entered using appropriate NMMSS site code.

Report recycled uranium to ± 1 MTU (metric ton uranium) for each enrichment level and chemical form within each enrichment level.

Report measured or estimated constituents (^{239}Pu, ^{237}Np, etc.) for each enrichment level and chemical form within each enrichment level.

Indicate in Data References by a code the source of all data for each entry – prepare data reference list cross correlated with data codes used on form. Also indicate in data reference list all NMMSS material codes represented in each entry.

Recycled Uranium Shipments

Make separate entries for each year of shipment, for each receiving site within each year, for each chemical form and for each significantly different U-235 enrichment level.

Receiving site identity should be entered using appropriate NMMSS site code.

Report recycled uranium to ± 1 MTU (metric ton uranium) for each enrichment level and chemical form within each enrichment level.

Report measured or estimated constituents (^{239}Pu, ^{237}Np, etc.) for each enrichment level and chemical form within each enrichment level.

Indicate in Data References by a code the source of all data for each entry – prepare data reference list cross correlated with data codes used on form. Also indicate in data reference list all NMMSS material codes represented in each entry.

Recycled Uranium Receipt

Make separate entries for each year of receipt, for each shipping site within each year, for each chemical form and for each significantly different U-235 enrichment level.

Shipping site identity should be entered using appropriate NMMSS site code.

Report recycled uranium to ± 1 MTU (metric ton uranium) for each enrichment level and chemical form within each enrichment level.

Report measured or estimated constituents (^{239}Pu, ^{237}Np, etc.) for each enrichment level and chemical form within each enrichment level.

Indicate in Data References by a codes the source of all data for each entry – prepare data reference list cross correlated with data codes used on form. Also indicate in data reference list all NMMSS material codes represented in each entry.

Recycled Uranium Receipts

Table #:

Shipping Site Name: Date:

% U-235	Inventory Location	Chemical Form	Quantity of RU, MTU	Range of Estimate/Measured Constituents							Data Refs
				ppb			ppm		Others		
				Pu-239	Pu-238	Np-237	U-236	Tc-99			

Recycled Uranium Inventory

Table #:

Site Name: **Date:**

% U-235	Inventory Location	Chemical Form	Quantity of RU, MTU	Range of Estimate/Measured Constituents							Data Refs
				ppb			ppm		Others		
				Pu-239	Pu-238	Np-237	U-236	Tc-99			

Recycled Uranium Shipments

Table #:

Shipping Site Name: **Date:**

Year	Receiving Site	Chemical Form	% U-235	Quality of RU, MTU	Range of Estimated/Measured Constituents							Data Refs
					ppb			ppm		Others		
					Pu-239	Pu-238	Np-237	U-236	Tc-99			